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File: ■ Black Cumin (*Nigella sativa*, Ranunculaceae)
■ Type 2 Diabetes Mellitus
■ Systematic Review

HC 022331-709

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RE: Black Cumin Shown Effective as Adjuvant Therapy for Type 2 Diabetes Management in Systematic Review

Hoda F, Khanam A, Thareja M, Arshad M, Ahtar M, Najmi AK. Effect of *Nigella sativa* in improving blood glucose level in T2DM: systematic literature review of randomized control trials. *Drug Res (Stuttg)*. January 2023;73(1):17-22. doi: 10.1055/a-1936-8412.

Diabetes mellitus affects about 9% of adults worldwide. Type 2 diabetes mellitus (T2DM) is characterized by high blood glucose levels due to tissue insulin resistance and inadequate insulin production. Glucose homeostasis and improvements in lipid levels and blood pressure measures can help prevent and treat the complications of T2DM. Traditional hypoglycemic drugs are used to increase insulin production, improve insulin sensitivity, and boost glucose uptake. However, many of these medications can also have adverse effects. Many herbal therapies have demonstrated hypoglycemic and hypolipidemic activities in patients with diabetes. Black cumin (*Nigella sativa*, Ranunculaceae [NS]), with its major bioactive component thymoquinone, exerts a protective effect against diabetes and its complications. The purpose of the systemic review reported here was to summarize the available evidence and literature of randomized, controlled trials (RCTs) using NS to manage T2DM.

The authors searched PubMed/Medline and Google Scholar for RCTs conducted on patients with T2DM and published in English during 2010-2021. The studies used NS seed or oil as an intervention and compared its effects with those of placebo and/or standard treatment. The studies included outcome measures of glycemia (glycated hemoglobin [HbA1c]) and/or fasting blood sugar (FBS). The authors did not include cross-sectional studies, case reports, case series, nonclinical studies, commentaries, editorials, or review articles.

The following data were collected from the studies: study author and country; study design, period, and duration; mean age and number of participants; percentages of females and males; and ascertainment of outcomes.

Study quality was assessed by using the Cochrane Risk of Bias Tool to measure the following bias domains: selection, performance, detection, attrition, reporting, and other.

Of the original 332 potentially relevant articles retrieved, the authors selected seven RCTs that met the inclusion criteria. In those seven studies, 523 patients were randomly assigned to NS or control groups. Males made up 49.13% of the 523 patients.

Four studies were conducted in Iran, two in Saudi Arabia, and one in India. Sample sizes ranged from 43 to 114 participants, and study durations were eight to 52 weeks. The mean age of the patients was 46-54 years. The NS formulations used were oil capsules in two studies, oil in two studies, and powder in three studies, with various doses ranging from 500 mg to 3 g daily. The patients in the intervention groups took NS supplements along with their standard oral antidiabetic drugs.

Six studies reported significant decreases in HbA1c measures after NS interventions ranging from eight to 52 weeks in daily doses of 500 mg NS oil, 2 g NS powder, 3 g NS powder, 3 g NS oil, and 2.5 mL NS oil. Those decreases were significant compared with changes observed in the placebo groups.

In the one study that reported the effects of NS on FBG, patients with T2DM took 1,000 mg NS oil daily for eight weeks and experienced significant decreases in FBG compared with the placebo group.

One study was assessed to have an overall high risk of bias; the other six studies were of low risk of bias.

This review is limited because it restricted outcome measures to glycemic control, and it excluded non-English articles, which could have introduced linguistic bias.

"With a considerable decline in fasting blood glucose and HbA1c levels, NS was shown to enhance laboratory measures of hyperglycemia and diabetes control," the authors conclude. The findings suggest that NS could be effective when used as an adjuvant to treat and manage patients with T2DM and its complications.

The authors declare no conflicts of interest.

—Shari Henson

The American Botanical Council has chosen not to reprint the original article.